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GENDER DIFFERENCES IN COMPUTER READINESS AMONG SMART SCHOOL TEACHERS

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GENDER DIFFERENCES IN COMPUTER READINESS AMONG SMART SCHOOL TEACHERS

By

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This project entitled "Gender Differences in Computer Readiness among Smart School Teachers" by Low Siow Ngo is submitted in partial fulfilment of the requirement for the Degree of Master of Science (HRD) in the Faculty of Educational Studies, Universiti Putra Malaysia.

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TABLE OF CONTENTS

Page

LIST OF TABLES

Table		Page
14	Means and Standard Deviations of Items Measuring Interest in Computer Usage of the Respondents	74
15	Mean Difference in the Level of Computer Readiness according to Interest in Computer Usage between Male and Female Respondents	75
16	Distribution of Respondents by Level of Computer Readiness according to Computer Usage and Gender	77
17	Means and Standard Deviations of Items Measuring Computer Usage of Respondents	78
18	Mean Difference in the Level of Computer Readiness according to Computer Usage between Male and Female Respondents	81
19	Summary of Gender Differences in Computer Readiness	84

LIST OF FIGURES

An abstract of a project presented to the Department of Professional Development and Continuing Education, Faculty of Educational Studies undertaken in partial fulfillment of the requirement for the degree of Master of Science, Universiti Putra Malaysia.

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April 1999

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Department : Department of Professional Development and Continuing Education

Faculty : Faculty of Educational Studies, Universiti Putra Malaysia

In order to help Malaysia make the critical leap into the Information Age, Smart Schools have been planned to help turn out students who are more technologically literate and who will become a thinking work force. Teachers of these Smart Schools must be computer-ready in order to help the education system undergo this radical transformation.

As teachers play an important role in the implementation of the Smart School, their level of computer readiness will help them use computers and modern technology to support and enhance the teaching and learning process

The major purpose of this study was to determine gender differences in the level of computer readiness according to the components of computer readiness like attitude towards computer usage, current computer knowledge, interest in computer usage and computer usage.

Questionnaires were sent out to teachers in Wilayah Persekutuan Kuala Lumpur who had undergone a 14-week in-service course and practicum to prepare them for teaching in Smart Schools. Data was obtained from 64 respondents in order to examine the level of computer readiness among teachers involved in the Smart School Project.

Analysis of data indicated that one-third of the teachers studied scored low in the level of computer readiness, and they consisted entirely of female teachers. About a quarter of the teachers studied were in the high level of computer readiness and this level consisted entirely of male teachers. An independent t-test indicated that there was significant difference between male and female teachers in the level of computer readiness.

As for the results on the level of computer readiness according to attitude towards computer usage, current computer knowledge, interest in computer usage and computer usage, independent t-tests also showed that there were significant gender differences. Mean scores of male teachers on the level of computer readiness according to the components were significantly higher than mean scores of female teachers.

In general, female teachers are low in their level of computer readiness. However, as female teachers make up more than 60 percent of the work force, they should show more concern and be more open in accepting the current introduction of information technology into the field of education. Educational administrators need to acknowledge that female teachers need additional help in advanced computer technology. As such, they need to pay more attention to developing motivation and encouraging positive computer attitude among female teachers. Female teachers must dispel outdated views of being incapable of understanding of applying technical concepts.

The findings of this study should be taken seriously by the relevant authorities as gender disparities in computer ability between teachers may become a setback in the implementation of the Smart School Project. Learning about computers and learning by using computers is something that all teachers must grasp before they can help make learning interesting and enjoyable for the students of the computer-dominated future.

Abstrak projek yang di kemukakan kepada Jabatan Pemajuan Profesional dan Pendidikan Lanjutan, Fakulti Pengajian Pendidikan, Universiti Putra Malaysia sebagai memenuhi sebahagian daripada keperluan untuk ijazah Master Sains.

PERBEZAAN JANTINA DALAM KESEDIAAN MENGGUNAKAN KOMPUTER ANTARA KALANGAN GURU-GURU SEKOLAH BESTARI

oleh

LOW SIOW NGO

April 1999

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Demi membantu Malaysia menuju ke Era Informasi, Sekolah Bestari telah dirancang untuk melatih pelajar-pelajar yang mempunyai tahap literasi teknologi yang lebih tinggi, dan menjadi kumpulan tenaga pekerja yang boleh berfikir secara kritis Guru-guru Sekolah Bestari perlu mempunyai kesediaan komputer supaya dapat membantu sistem pendidikan melakukan transfamasi yang radikal.

Oleh kerana guru-guru memain peranan yang penting dalam implimentasi Sekolah Bestari, tahap kesediaan menggunakan komputer guru akan membantu mereka menggunakan komputer serta teknologi moden untuk menyokong dan memperkembangkan proses pengajaran dan pembelajaran.

Tujuan utama kajian ini adalah untuk menentukan perbezaan antara jantina dalam tahap kesediaan menggunakan komputer mengikut komponen-komponen seperti sikap terhadap penggunakan komputer, pengetahuan komputer semasa, minat terhadap penggunaan komputer, dan tahap penggunaan komputer.

Soal selidik kajian diedarkan kepada guru-guru di Wilayah Persekutuan Kuala Lumpur yang telah menghadiri kursus dalam perkhidmatan serta praktikum selama 14 minggu untuk menyediakan mereka bertugas di Sekolah Bestari. Data diperolehi daripada 64 responden untuk mengkaji tahap kesediaan menggunakan komputer antara kalangan guru yang terlibat dalam Projek Sekolah Bestari.

Analisis data menunjukkan bahawa satu pertiga daripada guru yang dikaji mencapai tahap rendah dari segi kesediaan menggunakan komputer, dan semua dalam kumpulan ini terdiri daripada guru wanita. Lebih kurang satu perempat daripada guru yang dikaji mencapai tahap tinggi dari segi kesediaan menggunakan komputer, dan semua dalam kumpulan ini terdiri daripada guru lelaki. Ujian-t menunjukkan perbezaan signifikan antara guru lelaki dan guru wanita dalam tahap kesediaan menggunakan komputer.

Untuk keputusan tahap kesediaan menggunakan komputer mengikut komponen-komponen seperti sikap terhadap penggunakan komputer, pengetahuan komputer semasa, minat terhadap penggunaan komputer, dan tahap penggunaan komputer, ujian-t juga memperolehi perbezaan antara jantina yang signifikan. Skor min tahap kesediaan menggunakan komputer mengikut komponen-komponen untuk

guru-guru lelaki lebih tinggi daripada skor min guru-guru wanita.

Pada amnya, kebanyakkan guru wanita mencapai tahap rendah dalam kesediaan menggunakan komputer. Walau bagaimanapun, guru-guru wanita yang terdiri daripada 60 peratus tenaga pekerja pendidikan, harus memberi pemerhatian yang teliti dan sedia menerima implikasi penggunaan teknologi komputer dalam bidang pendidikan. Pihak pentadbir pendidikan harus peka kepada keperluan tambahan guru-guru wanita dalam teknologi komputer. Oleh itu, mereka perlu memberi perhatian yang lebih terhadap pengembangan motivasi guru serta menggalakkan sikap yang positif antara kalangan guru wanita. Guru wanita harus mempertikaikan pandangan yang lama bahawa mereka kurang kemampuan mengaplikasikan konsep teknikal.

Keputusan dalam kajian ini harus diterima dengan serius oleh pihak yang berkenaan kerana perbezaan antara guru wanita dengan guru lelaki mungkin menjadi satu rintangan dalam implimentasi Projek Sekolah Bestari. Guru-guru harus mempelajari tentang komputer dan mempelajari melalui komputer supaya mereka boleh menjadikan proses pembelajaran satu proses yang menarik serta menyeronokkan untuk pelajar-pelajar era komputer yang akan datang.

CHAPTER I

INTRODUCTION

The Problem and Its Context

Malaysia has developed tremendously since her independence in 1957. As a developing nation, there are bound to be changes. These aspects/perspectives of changes include economical changes, developmental changes, industrial changes, educational changes and information technology changes. In order to obtain these changes in an orderly manner and to guide the country towards development, the Malaysian Government has implemented strategic five-year development master plans. The Seventh Malaysian Plan (1996) is used to guide the development of the nation for the period 1996 to 2000. For the duration of the Seventh Malaysian Plan, one of the most important aspects is the development of information technology. Besides that, this plan also provides an ultimate backdrop to programs leading toward Vision 2020.

Vision 2020 is an optimistic, yet realistic, aspiration that draws upon past achievements and embodies the collective hope of Malaysians. The chief architect of this vision is Malaysia's Prime Minister, Datuk Seri Dr. Mahathir Mohamad. The objective of transforming Malaysia into a fully developed nation by the year 2020 guides the

people of the nation towards the realization of vision 2020. This vision calls for sustained, productivity-driven growth, which will be achievable only with a technologically literate, critically thinking work force prepared to participate fully in the global economy of the next millennium.

Multimedia Super Corridor (MSC)

In order to achieve vision 2020, one of the strategic plans used by the Malaysian Government is to leapfrog into the information age by providing intellectual and strategic leadership. This means investing in an environment that encourages innovation, helping companies, both Malaysian and international, to reach new technology frontiers, partnering global information technology players and providing the opportunities for mutual enrichment and success.

Malaysia welcomes the advent of the Information Age with its promise of a new world order where information, ideas, people, goods and services move across borders in the most cost-effective and liberal ways. Malaysia has chosen to be open and pragmatic in dealing with change, and is committed to working with other world citizens to encourage creativity, innovation and entrepreneurship. With that, Malaysia has created the Multimedia Super Corridor (MSC) to help companies of the world test the limits of technology and prepare them for the future. It will also accelerate Malaysia's entry into the Information Age, and through it, help actualize Vision 2020.

The MSC will bring together an integrated environment with all the unique elements and attributes necessary to create the perfect global multimedia climate. The MSC is an area 15 kilometer wide and 50 kilometer long that starts from the Kuala Lumpur City Center, down south to the site of the region's largest international airport, the Kuala Lumpur International Airport. Two of the world's first Smart Cities are being developed in the Corridor. The first one is Putra Jaya, the new seat of the government and administrative capital of Malaysia, where the concept of electronic government will be introduced. The second Smart City is Cyberjaya, an intelligent city with multimedia industries, research and development (R&D) centers, a Multimedia University, and operational headquarters for multinationals wishing to direct their worldwide manufacturing and trading activities using multimedia technology.

The MSC is set to deliver a number of sophisticated investments, businesses, R&D and lifestyle options, and it will also be a vehicle for attracting world-class technology-led companies to Malaysia in order to help develop local industries. It is a multimedia Utopia offering a productive and intelligent environment within which a multimedia value chain of goods and services will be produced and delivered across the globe. It is also an island of excellence with specific capabilities and technologies. Besides that, it is a test bed for invention, research and other grounds, a global community living on the leading-edge of the Information Society and a world of Smart Homes, Smart Cities, Smart Schools, Smart Cards and Smart Partnerships.

Smart Schools

The Smart Schools initiative is one of the seven flagship applications that are part of Malaysia's MSC project. The Government of Malaysia aims to capitalize on the presence of leading-edge technologies and the rapid development of the MSC's infrastructure to jump-start deployment of enabling technology to schools. This will be done by creating a group of 90 pilot Smart Schools by 1999 that will serve as the nucleus for the eventual nation-wide rollout of Smart School teaching concepts and materials, skills, and technologies. The aim is to have all 10,000 Malaysian primary and secondary schools as Smart Schools by the year 2010 (Government of Malaysia, 1997).

The Malaysian Smart School is a learning institution that has been systemically reinvented in terms of teaching-learning practices and school management in order to prepare children for the Information Age. To function effectively, the Smart School will require appropriately skilled staff, and well-designed supporting processes. One of the strategies to prepare students for the Information Age is to produce a technologically literate work force that can think critically, encouraging thought and creativity across the curriculum and applying technology effectively in teaching and learning. Therefore, teacher development will be critical to the success of the Smart School. Teachers will need intensive training in the use of information technology and in its integration into classroom activities in ways that enhance thinking and creativity. Smart School teachers will also need to learn to facilitate and encourage students to take charge of their own learning. In the long term, these teachers will need to augment their skills regularly if

they are to stay abreast of developments in their profession, and remain confident in their application of the technology.

As mentioned earlier, Malaysia needs to make the critical transition from an industrial economy to a leader in the Information Age. In order to make this vision a reality, Malaysians need to make a fundamental shift towards a more technologically literate, thinking work force, able to perform in a global work environment and use the tools available in the Information Age. To make this shift, the education system must undergo a radical transformation. The schooling culture must be transformed from one that is informed, thinking, creative and caring, through leading-edge technology.

Teachers play an important role in ensuring the success of the implementation of Smart School. Teachers will be instrumental in creating conditions that will promote self-directed learning, which is creative and independent. Computers will allow teachers to delegate routine exercises, and free them from the more mundane administrative tasks to concentrate on the human facet of education. The time made available can then be utilized to mould students to become good citizens with a sense of history, traditions and values.

According to Mathews (The Star, 25 Oct. 1998), computers can be important learning tools, but only in certain circumstances and when teachers are well skilled in their use. For example, students whose teachers used computers for simulation obtained better results than students whose teachers did not. In the same report, students whose

teachers had been trained in teaching with computers did better than students whose teachers lacked such training.

As reported by Simrit Kaur (The Sunday Star, 22 Nov. 1998), the Smart School project is an ambitious plan aimed at changing the face of Malaysian education as the country enters the new millennium. But due to the economic slowdown, the RM119 million originally slated for the Smart Schools Project has been slashed to RM50 million. This reduction has meant the scaling down of the pilot project that was implemented in January 1999. The original target launch of 90 schools has been reduced. The amount of computer equipment and accessories has also been reduced. The Ministry of Education however, is still carrying on with this project.

A Smart School is distinguished from a normal school through its use of computers and modern technology to support and enhance the teaching and learning process. The introduction of technology is therefore a critical component. These means teachers, as one of the key components of a Smart School, need to be computer literate. Besides that, teachers must be ready to shoulder the responsibility of using technology to enhance learning as technology is used as a tool and integrated into the curriculum.

Information Technology

Information Technology plays a significant role in national development, especially in improving efficiency, productivity and competitiveness. Therefore the development of information technology infrastructure would create a strong foundation for building a knowledge-based industrial economy and an information-rich society. For information technology programs to be successfully implemented in the various sectors of the economy there is a critical need to develop human resources to meet the increasing demand for computer-literate and competent workers. Besides that, in this rapidly changing technology world, workers have to retrain in new skills. Therefore, information technology studies and training should be included at various stages of education and training programs.

According to the Seventh Malaysia Plan (1996), more educational and training opportunities will be provided in order to increase the supply of educated and skilled manpower required by all schools and training institutions. The utilization of computers in educational and training institutions will enhance the teaching and learning processes and help overcome the problems of shortage of trained teachers and instructors.

Some of the thrusts of information technology development are to ensure widespread diffusion and application of information technology within and across sectors to stimulate productivity and competitiveness and further improve the quality of life. Other than that, developing a national action plan to ensure a more systematic approach

to manage information technology development in the country is also included in the thrust of information technology development. For example, the implementation of national application projects such as the MSC and the intelligent cities as well as the necessary telecommunications infrastructure will involve the development of an information technology culture. One of the prospects of the Seventh Malaysia Plan in information technology is the expansion of information technology education and training in line with the anticipated demand for information-related skills, knowledge and expertise.

14-Week In-service Course

The Smart School is one of the seven flagship applications of the MSC. To help achieve the objectives of the Smart School, a 14-week in-service course is held to train teachers in order that they can perform educational transformation. The curriculum for this course includes contents like the Smart School concept, change management, assessment and evaluation skills, critical and creative thinking skills, information technology skills, learning skills, curriculum specification, smart learning management, learning package, simulation, and practicum. The hours allotted for each section is listed in Table 1.

Table 1: Curriculum Content of 14-week In-service Course

	CURRICULUM CONTENTS	NO. OF HOURS
A.	Introduction	
	1. Smart School Concept	6
	2. Change Management	10
B	Generic Skills	
	3. Assessment and Valuation Skills	20
	4. Critical and Creative Thinking Skills	20
	5. Information Technology Skills	60
	6. Learning Skills	10
C.	Organization of Smart Learning	
	7. Specification Curriculum	14
	8. Smart Learning Management	50
D.	Smart Learning Practice	
	9. Learning Package	20
	10. Simulation	30
	11. Practicum	64
	TOTAL	304